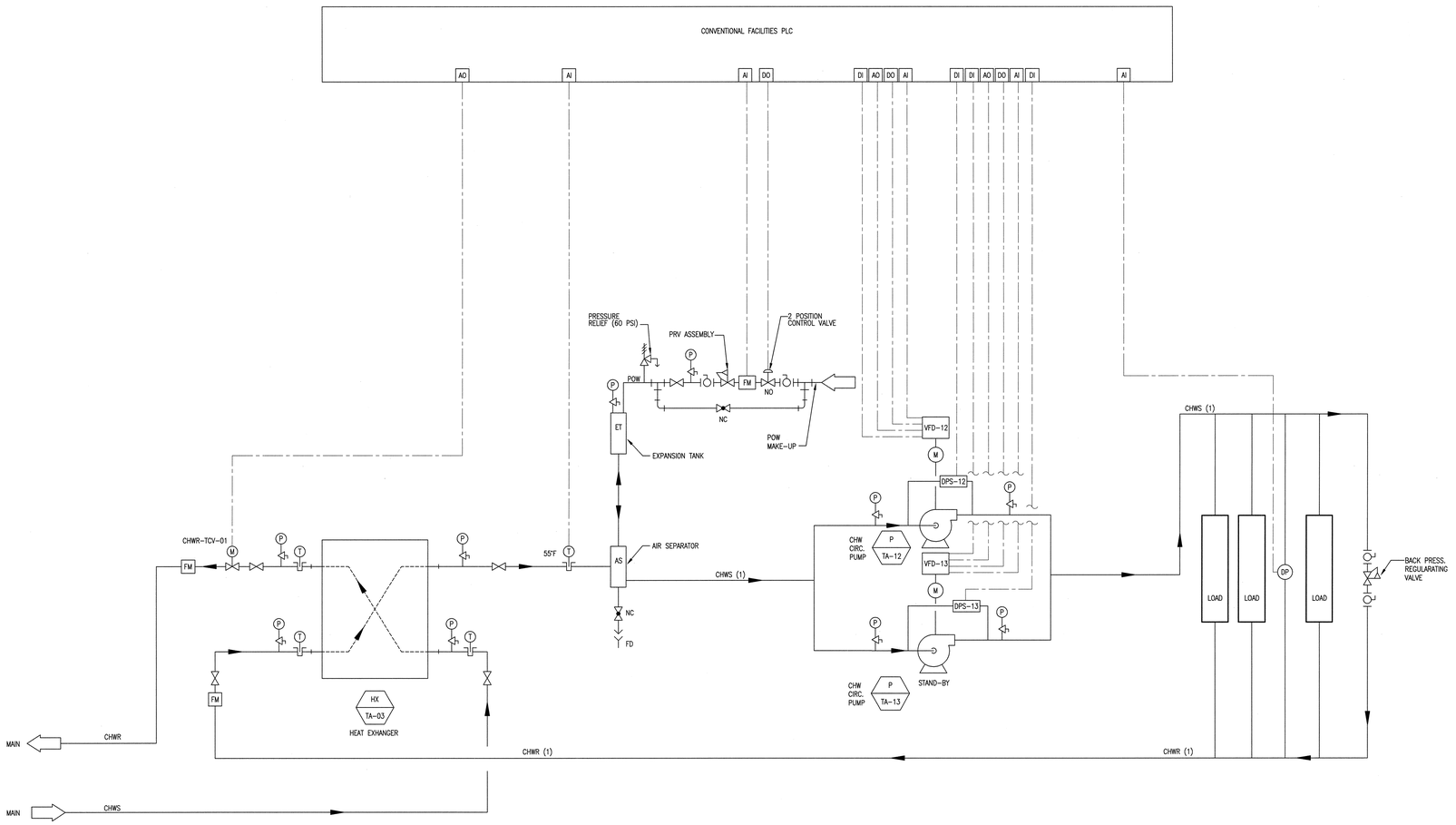
CONTROL POINT LIST - TARGET BUILDING CHILLED WATER SERVICE - SENSIBLE COOLING

BUILDING: TARGET		OUTPUT FROM CONTROL SYSTEM						INPUT TO DDC											SOFTWARE											
		DIGITAL			ANALOG			DIGITAL						ANALOG					ALARMS						APPLICATIONS					
POINT DESCRIPTION	GRAPHIC DISPLAY	CONTROL RELAY	HAND/OFF/AUTO	SOLENOID	OPEN / CLOSE	CONTROL POINT ADJUSTMENT	PROPORTIONAL CONTROL	CONTACT CLOSURE	PULSE	DIFFERENTIAL PIPES SWITCH	PRESSURE SWITCH	AUXILIARY CONTACT	GENERAL ALARM	TEMPERATURE (T)	SPEED (RPM)	PSIG, PSIA, PSID	POSITION SENSOR	FLOW	CONTACT CLOSURE	LOSS OF CONTACT CLOSURE		HIGH LIMIT	LOW LIMIT	RUN TIME		DUTY CYCLING	START/STOP	ECONOMIZER OFF/AUTO	REHEAT COIL RESET	LEAD/LAG	TEMPERATURE RESET	FAILURE MODE
CHILLED WATER SYSTEM (SENSIBLE)	X																														
CHILLED WATER RETURN CONTROL VALVE CHWR-TCV-01							X																								
PUMP – START/STOP P-TA-12		X																								X					
PUMP – STATUS DPS-12										X										X				X							
PUMP SPEED VFD-12							X																								
VFD SPEED FEEDBACK														X																	
VFD FAULT								X																							X
PUMP – START/STOP (STANDBY) P-TA-13		X																								X					
PUMP – STATUS (STANDBY) DPS-13										X										X				X							
PUMP SPEED (STANDBY) VFD-13							X																								
VFD SPEED FEEDBACK															X																
VFD FAULT								X																							X
CHILLED WATER SUPPLY TEMPERATURE														X								X	X								
DIFF. PRESSURE SENSOR																X															
MAKE UP WATER FLOW METER																		X													X
MAKE UP WATER CONTROL VALVE					X																					X					



SEQUENCE OF OPERATION

1. GENERAL:
   THE SYSTEM PUMP SHALL BE ENERGIZED THROUGH THE CONTROL SYSTEM AND SHALL RUN CONTINUOUSLY. SHOULD A PUMP FAIL TO START, OR FAIL DURING OPERATION, THE CONTROL SYSTEM SHALL DEENERGIZE THE FAILED PUMP AND SEND A SIGNAL TO ENERGIZE THE STAND-BY PUMP AND INDICATE AN ALARM CONDITION.

2. PRESSURE CONTROL:
   A DIFFERENTIAL PRESSURE SENSOR LOCATED IN THE DISTRIBUTION LOOP SHALL PROVIDE INPUT TO THE CONTROL SYSTEM. THE CONTROL SYSTEM SHALL MODULATE THE SPEED OF THE OPERATING PUMP TO MAINTAIN THE REQUIRED DIFFERENTIAL PRESSURE. A FAULT SIGNAL FROM EACH PUMPS VFD SHALL BE CONNECTED TO THE CONTROL SYSTEM IN ORDER TO INDICATE AN ALARM CONDITION UPON VFD OR PUMP FAILURE.

3. TEMPERTIATURE CONTROL:
   A TEMPERATURE SENSOR IN THE SENSIBLE CHILLED WATER SUPPLY LINE SHALL PROVIDE INPUT TO THE CONTROL SYSTEM. THE CONTROL SYSTEM SHALL MODULATE THE MAIN CHILLED WATER CONTROL VALVE AS REQUIRED TO MAINTAIN THE SENSIBLE CHWS AT 55°F.

4. DUTY CYCLING:
   THE CONTROL SYSTEM SHALL CALCULATE PUMP RUN TIME. THE CONTROL SYSTEM SHALL CYCLE IN ALL STAND-BY EQUIPMENT TO MAINTAIN UNIFORM RUN TIME.

5. MAKE UP WATER:
   THE FLOW METER SHALL MEASURE FLOW THROUGH THE MAKE UP LINE. UNDER NORMAL OPERATION THE FLOW SHALL BE ZERO. WHEN THE FLOW METER TOTALS A FLOW VOLUME OF 1 GPM, AN ALARM SHALL SOUND. IF THE FLOW RATE INCROASES TO 10 GPM, THE CONTROL VALVE SHALL CLOSE. THE CONTROL VALVE SHALL BE 2 POSITION.
   THE CONTROL VALVE SHALL BE FAIL OPEN.

NUMBER OF SECTION OR DETAIL
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN OR TAKEN
SECTION AND DETAIL KEY

THIS DOCUMENT CONTROLLED BY
CHANGE CONTROL SYSTEM 3
ENGINEERING PROCEDURE SNS-ENG-G001

REV	CHANGE TYPE	CHANGE CONTROL SYSTEM	CHANGE REQUEST NUMBER	DESCRIPTION	DSN	CHK	DEPT
A				ISSUED FOR REFERENCE – 10/26/01	MMK	BWJ	

REVISION OR ISSUE PURPOSE

DATE	PE	DATE	PJ	DATE	REQ	DATE	UTB	DATE	RPE	RPE NO	DATE
								BWJ	105869	10/26/01	

REVISION APPROVALS

REW	–	WRS	AK	WRS	BWJ	–	MP	–	ED
ST	CV	EC	EE	EM	IE	M	PD	SE	AR

SQUAD CHECK

RPE
FOR REFERENCE ONLY
REV: DATE
DRAWING APPROVALS

DSN	M.KEHOE	10/26/01
DRW	M.THAW	10/26/01
CHK	BJOHNSON	10/26/01
DEPT		
PE		
PJ		
REQ		
UTB		

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PROJECT NAME:
SPALLATION NEUTRON SOURCE
TARGET BUILDING
SENSIBLE COOLING-CHILLED WATER
CONTROL DIAGRAM

1	48	49	50	PLANT	BLDG	FL	SH.	OF	TYPE	CLASS
3	H	X	X	8	8700		1	1	D	U
51		52		53	WBS					REV
NC		NA			1.8.3.7		H8.41.05			A

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